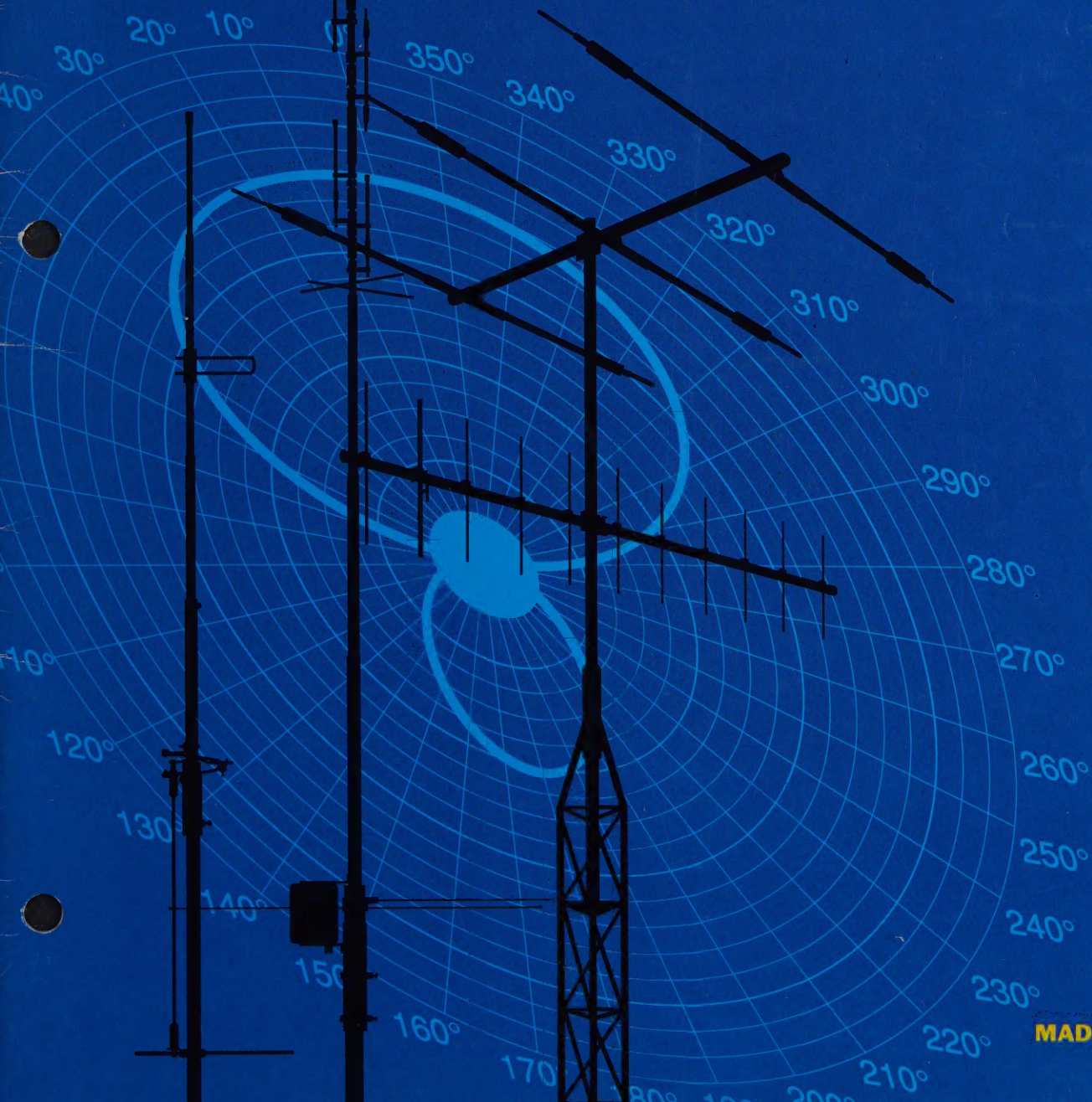


AMATEUR RADIO ANTENNAS



cushcraft

C O R P O R A T I O N



MADE IN THE USA

A22-B

R5 / R7 Halfwave HF Verticals

The right antennas for every ham.

The "R" series antennas have revolutionized the way hams look at verticals. Dedicated hams all over the world have tried the R5 and R7 and have been amazed that these compact, rugged verticals can perform the way they do. The outdated idea that a vertical antenna is a serious compromise has been put to rest. Not only are these antennas compact and able to fit just about anywhere, but they're built strong and built to last.

The R5 and R7 are the result of decades of experience in antenna design. They have proven themselves on Arctic DX-peditions, tropical island contest stations, ocean vessels and even on a hot air balloon trip. Their greatest success, though, has been in amateur home stations throughout the world where they provide exceptional performance.

Whether you understand the technology involved or not, know that these compact antennas perform like no others. Tune in on 10 to 40 meters and talk to many enthusiastic R5 and R7 owners.

- No Ground Radials
- Compact Size
- Low Angle Radiation
- Automatic Band Switching
- Broadband Matching
- Mount Anywhere
- No Moving Parts

MODEL	R5	R7
Frequency, MHz	28, 24, 21, 18, 14	28, 24, 21, 18, 14, 10, 7
Gain, dBi	3	3
Electrical Wavelength	Halfwave	Halfwave
SWR 2:1 Bandwidth	10 m-2 MHz	10 m-2 MHz
	12 m-100 KHz	12 m-100 KHz
	15 m-450 KHz	15 m-450 KHz
	17 m-100 KHz	17 m-100 KHz
	20 m-350 KHz	20 m-150 KHz
		30 m-50 KHz
		40 m-75 KHz
Power Rating, Watts PEP	1800	1800
Radiation Angle, Degrees	16	16
Frequency Selection	Automatic	Automatic
Horizontal Rad. Pattern Deg.	360	360
Height, ft (m)	17 (5.2)	22.5 (6.9)
Mast Size Range, in	1.5-1.75	1.5-1.75
(cm)	(3.8-4.4)	(3.8-4.4)
Wind Load, ft ² (m ²)	1.4 (.13)	2.25 (.21)
Weight, lb (kg)	8.7 (4)	12.3 (5.6)
49" Counterpoise Radials Supplied	4	7

10, 12, 15, 17, 20 METERS



Thousands of R5's are currently in use by satisfied hams worldwide. This compact, 17 foot high halfwave has

gained popularity because of its reputation for uncanny performance level's and the fit-anywhere convenience of a vertical without ground radials. Put the world in your log book on 10 through 20 meters with the Cushcraft R5 halfwave vertical.

"It did everything I hoped and more. . . In 27-1/2 hours of operating over 5-1/2 days, we made 2788 CW QSO's with 87 countries. . ."

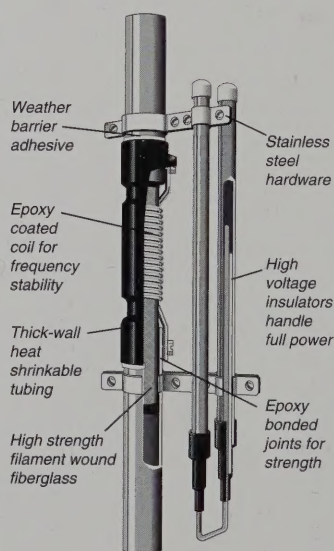
QST, Oct. 1990

"I had used the antenna with my RV in Mexico and worked over 80 countries."

CQ, Nov. 1989

"I must congratulate Cushcraft for a well-made, easy-to-use antenna."

Practical Wireless, Sept. 1992



NO GROUND RADIALS

"The antenna was of vital importance to me as I used it twice a week to speak to my wife and children back in New York." (WA2RUD / 5H3WL / 5Z4PI)

"The R5 works superb. Best DX vertical I ever had during 30 years of ham practice." (DJ8WI)

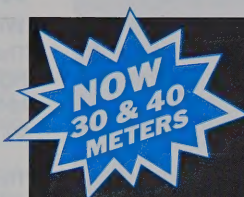
"Everything assembled beautifully and how nice not having to have an antenna tuning unit when band changing." (G4JZK)

"Thanks for designing such an excellent antenna that provides so much fun for us apartment dwellers." (N1LKH)

10, 12, 15, 17, 20, 30, 40 METERS



This 22 foot marvel packs a punch on 10 to 40 meters that has to be experienced to be believed. With only 7 short counterpoise rods, the R7 will fit just about anywhere. If you're looking for the most performance in the smallest package then the R7 is for you. Precisely tuned radio frequency traps optimized for each band and strategically placed X-hats enable the R7 to radiate a low angle signal that makes working DX a snap. Experience 7 band performance anywhere with the incredible R7.



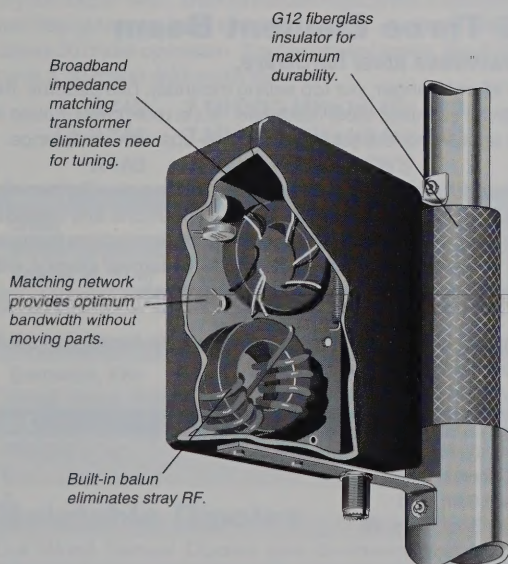
The R7 and R5 do not need ground radials. Because of their compact size, they are perfectly suited for almost any limited space application. Whether you're operating from a balcony, RV, rooftop or mobile environment, you will find the R7 and R5 to be exceptional performers.

*"It's an excellent solution for somebody who's looking for a low-profile homestation antenna that works well on 40 through 10 meters. . . ideal for portable operation because it easily breaks down into a small package, and you don't have to worry about a radial system or finding trees for supports." **

QST, August 1992

*"The instructions are very detailed and clear. . . the antenna goes together in about 30 minutes. . . running 100 Watts and using the R7 I managed to work DXCC (actually 117 countries). . . hardware is of very outstanding material, and the antenna is best described as rugged." **

CQ, August 1992



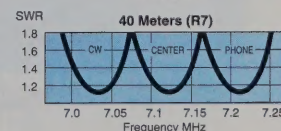
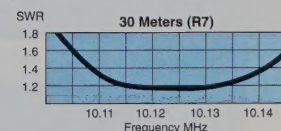
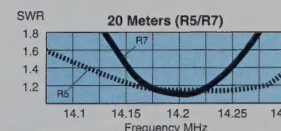
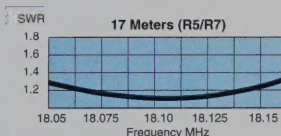
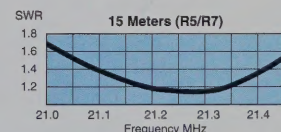
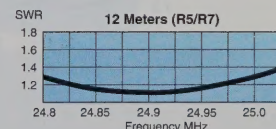
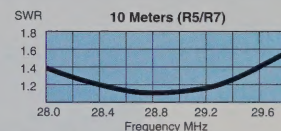
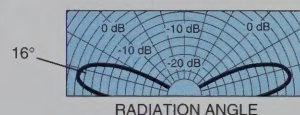
"Excelentes resultados con la R7" (XE1USN)

"It performed excellently even under extreme weather conditions both electrically and mechanically." (3Y2GV) Antartica

"Tropical storm Zelda struck Kwajalein on Thanksgiving Day. . . As the beams blew down, my R7 vertical stayed up." (V73CT)

"Used R7 on IOTA EU-135 expedition. . . Beautiful performance!" (SM3DMP)

NO GROUND RADIALS



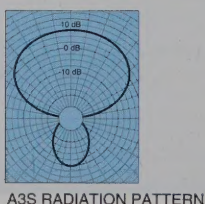
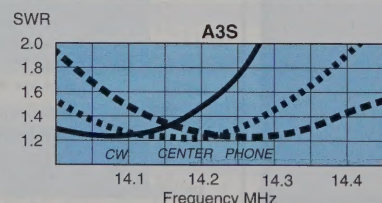
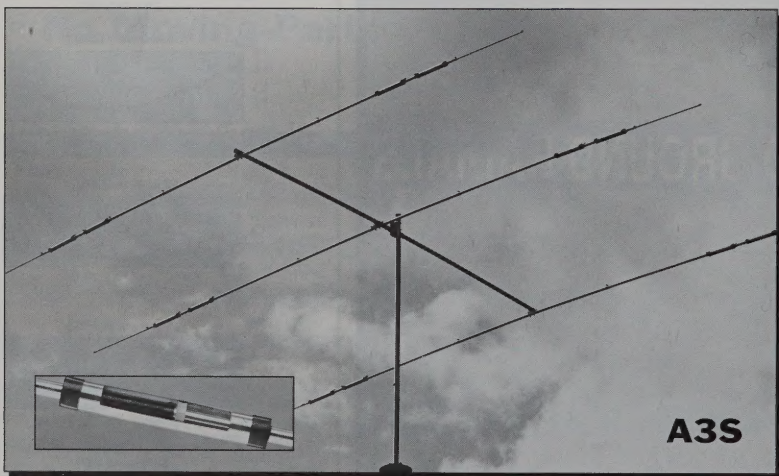
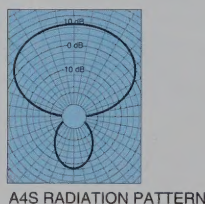
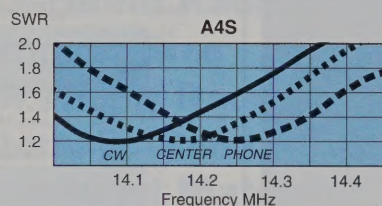
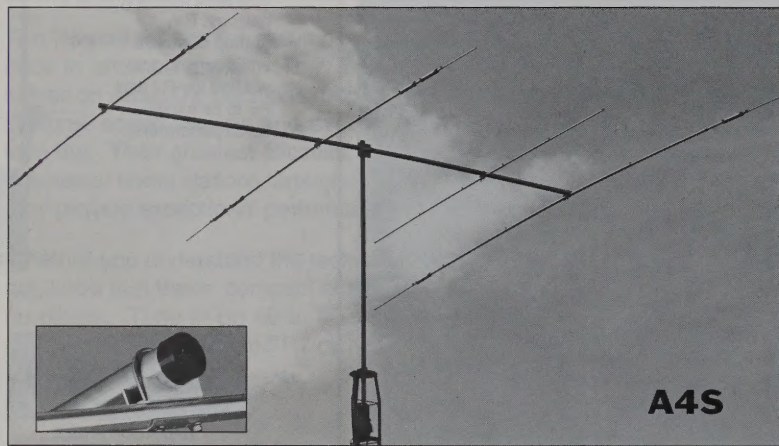
World Ranger Multiband HF Yagis

10, 15, 20, 40 METERS

Cushcraft Tribanders Make More DX Fun!

Our three and four element tribanders provide the versatility and performance that you need for reliable communication around the world. And they last! Cushcraft's World Rangers are made with 6063-T832 aluminum tubing, weatherproof traps, and fiberglass insulators to stand up to the weather. Our World Rangers have 50 Ohm twin terminal connectors and need no balun. They are designed with fewer parts for easier assembly, lower weight and less windload. You will spend your time in the shack, not on the tower!

Ham radio is a lot more fun when you have a dependable antenna like our World Ranger. Make your choice from our A4S, A3S and A3WS models. Add a 30 or 40 meter kit to make your antenna even more versatile!



A4S Four Element Beam

With stainless steel hardware.

The A4S is the true, high performance tribander. Precisely tuned high-power traps, carefully selected element lengths, and proper spacing combine to make the A4S the preferred antenna for your contest work!

This is the premium antenna with all the features that you want. High gain, low SWR, and wide bandwidth keep the contacts coming in. All U-bolts, clamps and hardware are stainless steel. The A4S has pinned boom sections and formed aluminum brackets to keep elements straight under all conditions. And our solid construction keeps the A4S on the tower!

MODEL	A4S
Frequency, MHz	28, 21, 14
No. Elements	4
Forward Gain, dBd	8.9
Front to Back Ratio, dB	25
SWR 1.2:1 Typical	
2:1 Bandwidth KHz	>500
Power Rating, Watts PEP	2000
3 dB Beam Width, Deg. E Plane	58
Boom Length, ft (m)	18 (5.48)
Boom Diameter, in (cm)	2 (5.10)
Longest Element, ft (m)	32 (9.75)
Element Center Dia, in (cm)	1.25 (3.18)
Turning Radius, ft (m)	18.4 (5.49)
Mast Size Range, in (cm)	1.25-2.00 (3.18-5.08)
Wind Load, ft ² (m ²)	5.50 (0.51)
Weight, lb (kg)	37 (16.8)

A3S Three Element Beam

With stainless steel hardware.

The A3 World Ranger, our top selling tribander, has become the A3S with all stainless steel hardware. It's a real power-house in a small space and lets you work the pile-ups with confidence.

All you need is a lightweight tower and rotator to enjoy the benefits of the A3S. It's a proven performer in DX-peditions and contests and handles full power from your linear. Construction features include pinned boom sections, heavy duty element clamps with backing plates plus all stainless steel hardware.

When space is at a premium, but you want the benefits of a full-size tribander, the A3S is right for you!

MODEL	A3S
Frequency, MHz	28, 21, 14
No. Elements	3
Forward Gain, dBd	8
Front to Back Ratio, dB	25
SWR 1.2:1 Typical	
2:1 Bandwidth KHz	>500
Power Rating, Watts PEP	2000
3 dB Beam Width, Deg. E Plane	60
Boom Length, ft (m)	14 (4.27)
Boom Diameter, in (cm)	1.50 (3.81)
Longest Element, ft (m)	27.75 (8.45)
Element Center Dia, in (cm)	1.25 (3.18)
Turning Radius, ft (m)	15.50 (4.72)
Mast Size Range, in (cm)	1.25-2.00 (3.18-5.08)
Wind Load, ft ² (m ²)	4.36 (0.47)
Weight, lb (kg)	27 (12.9)

World Ranger Multiband HF Yagis

12, 17, 30 METERS

A3WS WARC Bands 3 Element Beam

Enjoy the excitement of our newest HF bands with this all new beam. The A3WS gives full performance on 12 and 17 meters. With the addition of our easy to use A103 add on kit, it will also cover 30 meters.

A3WS needs only a lightweight tower and rotator or you can mount it above an existing tribander. Construction features include pinned boom sections, heavy duty element clamps with backing plates plus all stainless steel hardware. Take charge of the 12, 17 and 30 meter bands with the new A3WS.

MODEL	A3WS
Frequency, MHz	24, 18
No. Elements	3
Forward Gain, dBd	8.0
Front to Back Ratio, dB	25
SWR 1.2:1 Typical	
2:1 Bandwidth KHz	300
Power Rating, Watts PEP	2000
3 dB Beam Width, Deg. E Plane	60
Boom Length, ft (m)	14 (4.27)
Boom Diameter, in (cm)	1.5 (3.81)
Longest Element, ft (m)	25.1 (7.66)
Element Center Dia, in (cm)	1.25 (3.18)
Turning Radius, ft (m)	14.4 (4.4)
Mast Size Range, in (cm)	1.25-2.0 (3.18-5.08)
Wind Load, ft ² (m ²)	4.1 (.38)
Weight, lb (kg)	22.5 (10.2)

30 and 40 Meter Add-On Kits

40 meters will come alive by adding one of these kits to the dipole of your A3S or A4S. The kits include high power traps with heavy wall fiberglass insulator and all hardware. A simple adjustment allows 30 meter operation. For our newest beam, the A3WS, we have a 30 meter add on kit the A103.

A743 7 MHz/10 MHz kit for A3S

A744 7 MHz/10 MHz kit for A4S

A103 10 MHz kit for A3WS

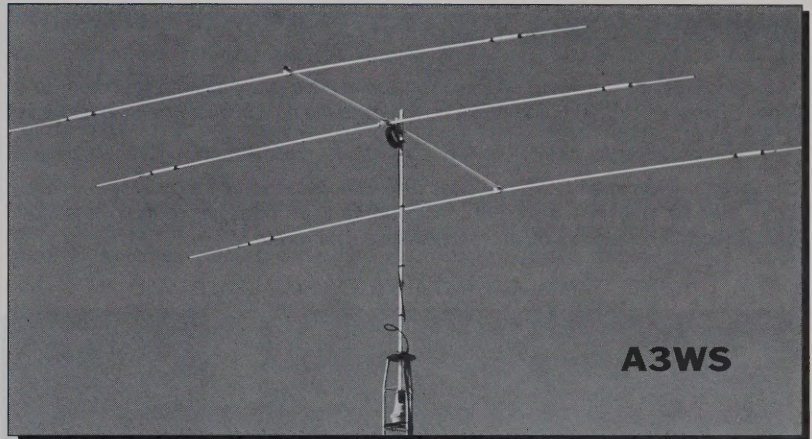
MODEL	A743/A744	A103
BAND	7 MHz (40 m)	10 MHz (30 m)
Driven Element with		
Adapter kit, ft (m)	33.19 min. 35.33 max. (10.12-10.77)	27.12 min. 28.4 max. (8.27-8.66)
Windloading ft ² (m ²)	.58 (.05)	.27 (.03)
Bandwidth, KHz	125	150
Power Rating, Watts	2000 PEP	2000 PEP
Side Rejection, dB	20	20
Weight, lb (kg)	3.44 (1.56)	2.29 (1.04)

Rotatable Dipoles

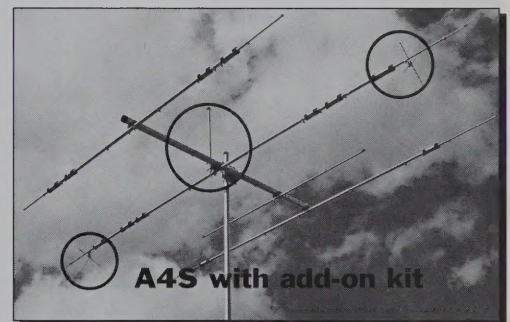
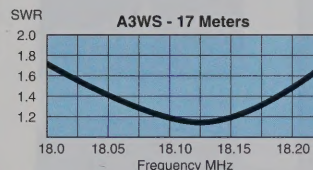
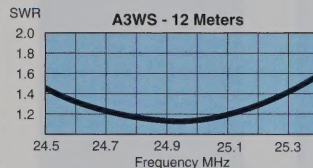
Our World Ranger Dipoles give bi-directional patterns and rotatable convenience. You can mount them high and away from the trees for better performance than a wire dipole. These single and multi-band dipoles feature high-performance traps, heavy wall tubing, and rugged hardware for years of enjoyment.

D3W World Ranger Dipole

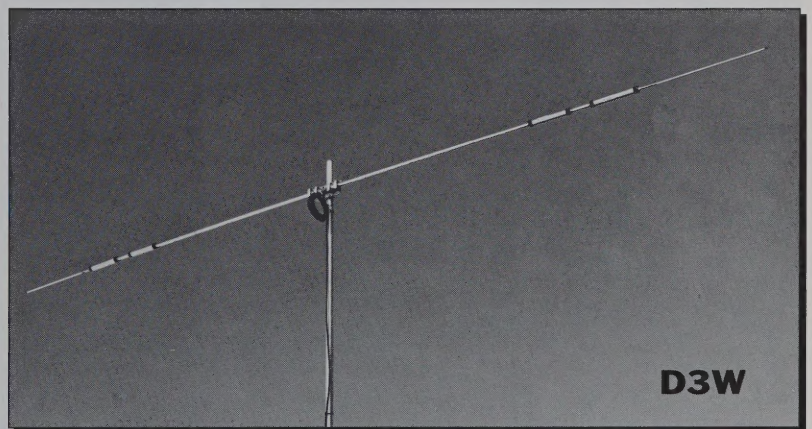
The perfect answer for the WARC bands. This rotatable dipole is easily mounted on the same mast as your existing tri-bander or other antennas. With a bi-directional pattern it will give you amazing performance on the new bands.



A3WS

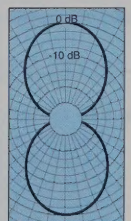


A4S with add-on kit



D3W

MODEL	D40	D4	D3	D3W
Frequency, MHz	7	28,21,14,7	28,21,14	24,18,10
SWR 1.2:1 Typical				
2:1 Bandwidth, KHz	200	>350 40>125	>500	>200
Power Rating				
Watts PEP	2000	2000	2000	2000
Length ft	42.25	35.8	25.8	34.0
(m)	(12.88)	(10.92)	(7.86)	(10.37)
Mast Size, in(cm)	1.5-2 (3.8-5)	1.5-2 (3.8-5)	1.5-2 (3.8-5)	1.5-2 (3.8-5)
Wind Load, ft ² (m ²)	1.3 (.12)	1.3 (.12)	.9 (.08)	.9 (.08)
Weight, lb (kg)	12 (5)	13 (6)	9 (4)	11 (5)



TYPICAL DIPOLE
RADIATION
PATTERN

Multiband HF Quarterwave Verticals

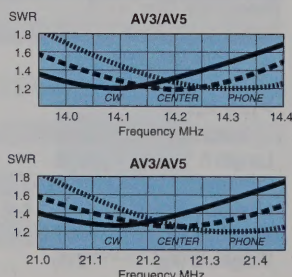
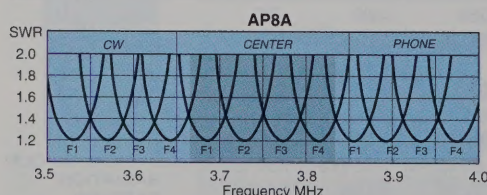
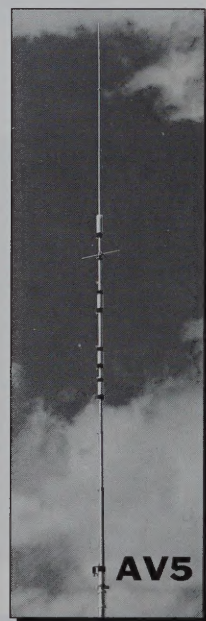
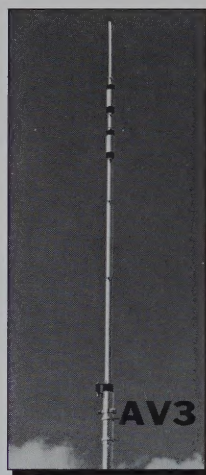
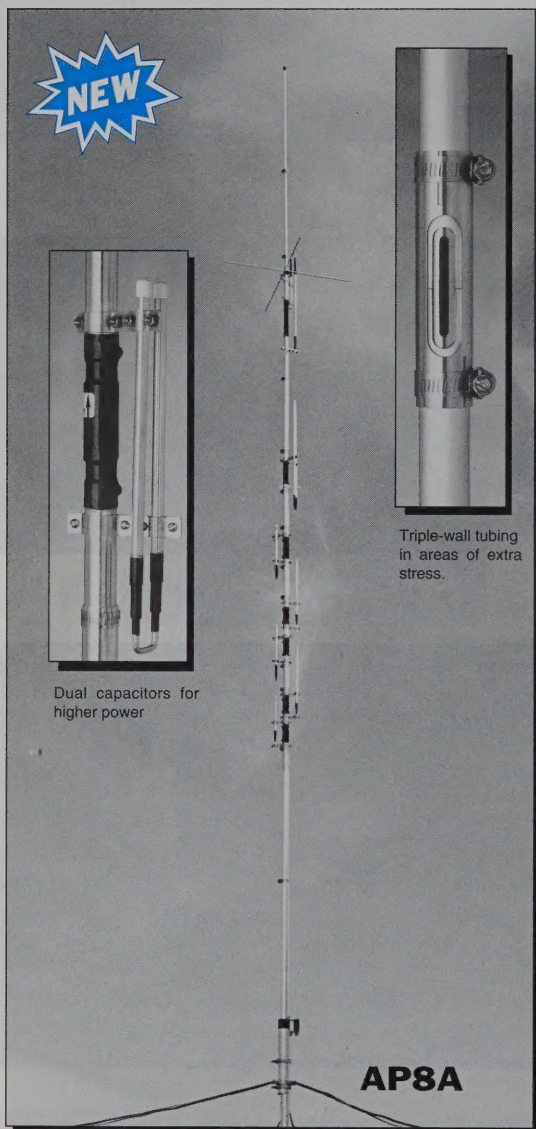
10 THROUGH 80 METERS

Up to eight bands await you with Cushcraft's popular multiband vertical antennas! New this year is the AP8A, a rugged 8 band.

Multiband verticals are a cost effective solution to the space problems that many of us face. Cushcraft AV3, AV5 and AP8A verticals are the right choice when a beam is not practical.

Our AV3 three-band and AV5 five-band are economical and offer good performance. They may be your first choice in multiband verticals because of their broadband performance, enclosed traps, and stainless steel hardware.

AP8A, AV3 AND AV5 REQUIRE RADIALS



NEW AP8A, Eight Bands In One Tough Antenna

The AP8A is the next generation eight-band quarterwave that has been strengthened with thick wall tubing, up to three layers deep in some sections, and high tensile strength fiberglass. The traps have been beefed up to handle the legal limit and are moisture sealed. You can be up and running on 10 through 80 meters in no time. (The APR-18A Radial Kit will make the job even easier.) The key to the AP8A's eight band coverage is the automatic bandswitching and efficient traps. The traps are parallel LC circuits which allow broadband operation. The AP8A is a very popular antenna with new hams because it's such a great value. Eight bands in one rugged antenna at an affordable price.

MODEL	AP8A
Frequency, MHz	28, 24, 21, 18, 14, 10, 7, 3.5
Electrical Wavelength	1/4
SWR 1.2:1 Typical	
2:1 Bandwidth	Full Band Except 40M>150 KHz & 80 M>80 KHz
Power Rating, Watts PEP	2000
Radiation Angle, degrees	18
Frequency Selection	Automatic
Horizontal Radiation Pattern, degrees	360
Height, ft (m)	26 (7.92)
Mast Size Range, in (cm)	1.5-1.75 (3.8-4.4)
Wind Load, ft ² (m ²)	1.7 (.16)
Weight, lb (kg)	9.5 (4.3)
Radials Required	Normally
Radial Kit Available	Yes, APR18A

NEW APR18A Radial Kit

The all new Cushcraft APR-18A radial kit is the perfect match for the AP8A, AV3, AV5, or any quarterwave amateur HF vertical where a good low angle signal on the horizon and a low VSWR are important. The kit offers maximum performance on all HF bands and consists of only 9 multiple and single-conductor radials, with a maximum length of only 31 feet. It's great for quick installation at either ground level or rooftop sites.

AV3 Three Band & AV5 Five Band

Our AV3 handles 10, 15, and 20 meters with fine performance and easy assembly. It has the same rugged construction as the AV5. The AV5 works with the popular 10, 15, 20, 40 and 80 meter bands with broad bandwidth and full legal power. For versatility, this is the antenna for you!

MODEL	AV3	AV5
Frequency, MHz	28, 21, 14	28, 21, 14, 7, 3.5
Electrical Wavelength	1/4	1/4
SWR 1.2:1 Typical		
2:1 Bandwidth	Full Band	Full Band except 80 M>70 KHz
Power Rating, Watts PEP	2000	2000
Radiation Angle, degrees	18	18
Frequency Selection	Automatic	Automatic
Horizontal Rad. Pattern, deg.	360	360
Height, ft (m)	14 (4.2)	25 (7.4)
Mast Size Range, in (cm)	1.5-1.75 (3.8-4.4)	1.5-1.75 (3.8-4.4)
Wind Load, ft ² (m ²)	1.02 (.1)	1.89 (.19)
Weight, lb (kg)	5 (2.3)	8 (3.6)
Radials Required	Normally	Normally
Radial Kit Available	Yes, APR18A	Yes, APR18A

Skywalker Monoband HF Yagis

10, 15 METERS

10 Meters

The three element model is a great selling antenna! If you have the space, and need the utmost in performance, then try our four element Skywalker. You can't go wrong with these contest winners, especially if you are a Novice new to ten meters!

MODEL	10-4CD	10-3CD
Frequency, MHz	28.0-29.7	28.0-29.7
No. Elements	4	3
Forward Gain, dBd	10.0	8.0
Front to Back Ratio, dB	30	30
SWR 1.2:1 Typical		
2:1 Bandwidth, KHz	>900	>1400
Power Rating, Watts PEP	2000	2000
3 dB Beamwidth, Deg. E Plane	56	57
Side Lobe Attenuation, dB	40	40
Boom Length, ft (m)	16 (4.88)	10 (3.05)
Boom Diameter, in (cm)	2.0 (5.08)	1.63-1.50 (4.1-3.8)
Longest Element, ft (m)	17.58 (5.34)	17.66 (5.38)
Element Center Dia, in (cm)	.88-.63 (2.2-1.6)	.88-.63 (2.2-1.6)
Turning Radius, ft (m)	11.5 (3.5)	10 (3.05)
Mast Size Range, in (cm)	1.5-2.0 (3.8-5.1)	1.5-2.0 (3.8-5.1)
Wind Load, ft ² (m ²)	3.1 (.29)	2.3 (.21)
Weight, lb (kg)	18 (8.16)	11 (5.00)

15 Meters

These two Skywalkers will keep you enthusiastic about 15 meters. Our three element model gives fine performance in limited areas. For maximum gain, select the four-element model with its new 2" diameter boom. Or, try stacking two four element Skywalkers for incredible performance! Reddi-match tuning makes it easy.

The 10dB forward gain of our 15-4CD is the result of computer design and will keep you the first in line during pileups!

MODEL	15-4CD	15-3CD
Frequency, MHz	21.0-21.45	21.0-21.45
No. Elements	4	3
Forward Gain, dBd	10.0	8.0
Front to Back Ratio, dB	30	30
SWR 1.2:1 Typical		
2:1 Bandwidth, KHz	500	500
Power Rating, Watts PEP	2000	2000
3 dB Beamwidth, Deg. E Plane	56	57
Side Lobe Attenuation, dB	>40	>40
Boom Length, ft (m)	20 (6.10)	14 (4.27)
Boom Diameter, in (cm)	2.0 (5.08)	2.0 (5.08)
Longest Element, ft (m)	23.33 (7.11)	23.16 (7.06)
Element Center Dia, in (cm)	1 (2.5)	1 (2.5)
Turning Radius, ft (m)	15.4 (4.72)	13.5 (4.11)
Mast Size Range, in (cm)	1.5-2.0 (3.8-5.1)	1.5-2.0 (3.8-5.1)
Wind Load, ft ² (m ²)	4.5 (.42)	3.4 (.32)
Weight, lb (kg)	25 (11.34)	20 (9.07)



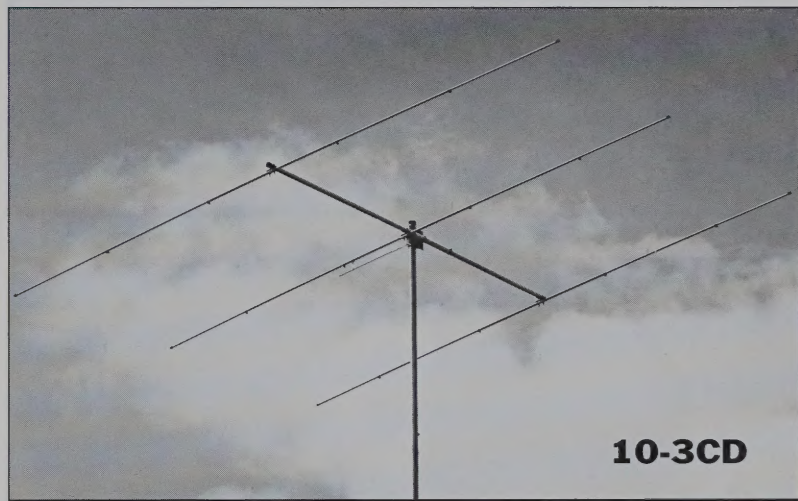
More Performance Than You Ever Imagined

More contacts, less waiting, less interference, and a better signal at the other end are yours with a Skywalker!

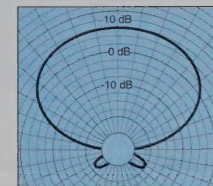
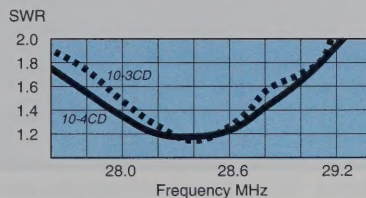
Computer-aided design helped us maximize forward gain while reducing sidelobes and SWR. Our 50 Ohm Reddi-match feed uses a UHF SO-239 for easy connection.

Construction features include improved larger diameter pinned booms with fewer sections, heavy-wall heat treated 6063-T832 aluminum tubing, stainless steel fasteners, worm drive element clamps, and carefully formed aluminum brackets.

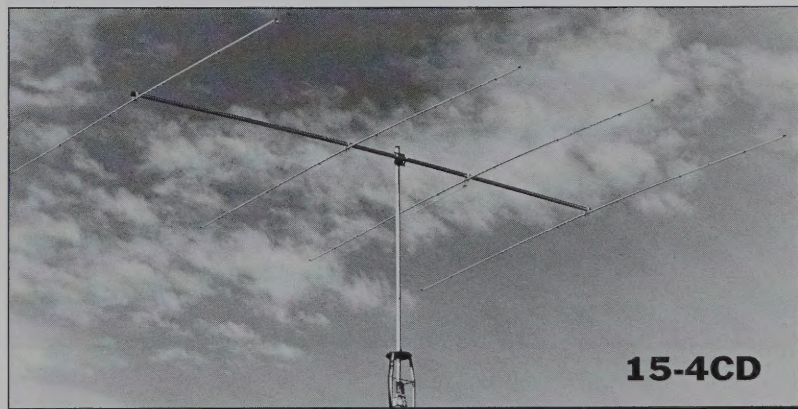
Assembly is easy and installation can often be done by one person! Skywalkers are contest winners. One of these fine antennas is perfect for you.



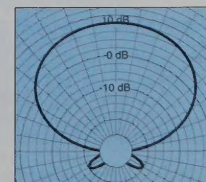
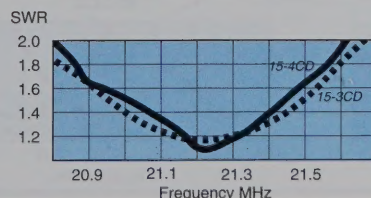
10-3CD



TYPICAL 3 ELEMENT PATTERN



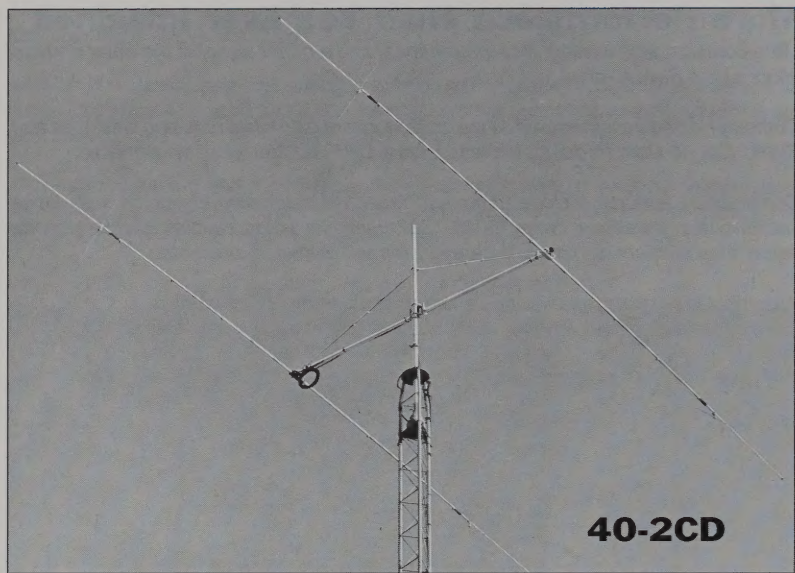
15-4CD



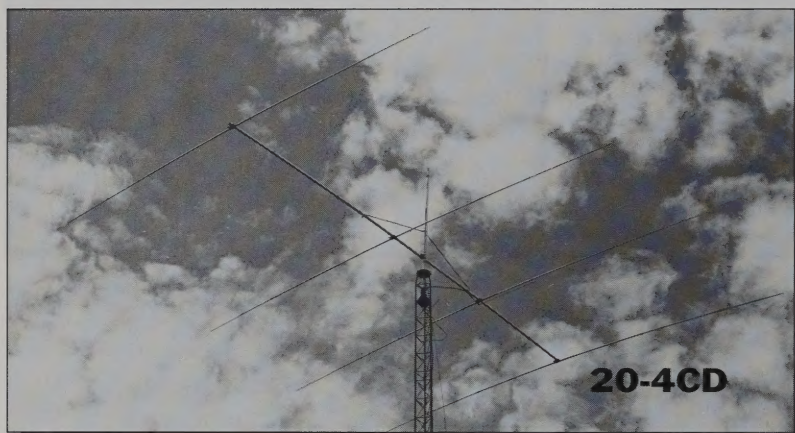
TYPICAL 4 ELEMENT PATTERN

Skywalker Monoband HF Yagis

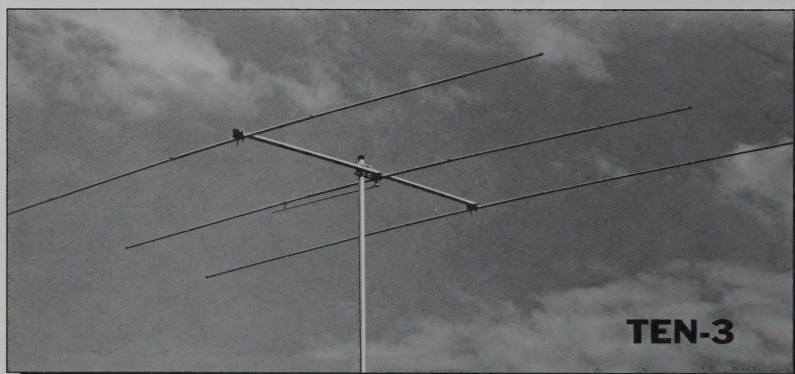
10, 20, 40 METERS



40-2CD



20-4CD



TEN-3

40 Meters

This Skywalker holds the North American contact record for 40 meters. A two element compact antenna, it has the performance that you want for 7 MHz work. The dipole center insulator is heavy duty with a twin terminal 50 Ohm connection. It is by far the most popular two element 40 meter beam!

20 Meters

Our four-element 20 meter Skywalker and its three element compact version will punch your signal through the QRM.

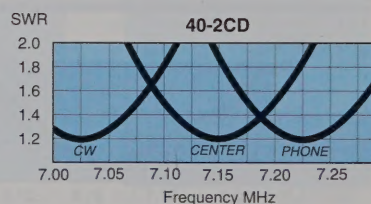
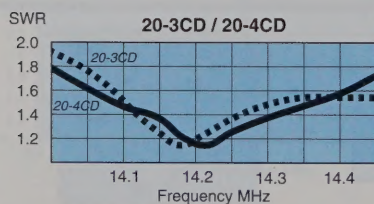
Stainless steel fasteners and double U-bolt brackets ensure that your antenna will last for years.

10 Meters TEN-3

Looking for a lightweight, economical alternative to the 10 meter Skywalkers? Choose the TEN-3. Although its popular with novices and technicians, this antenna is for any ham who wants more gain with a good front to back ratio on 10 meters. This antenna has an 8 foot boom making it easy to install on a very simple mount with only a lightweight rotator. The matching system is our proven Reddi Match for 50 Ohm no balun feed and SO-239 connector. Make more positive contacts with the new TEN-3.

MODEL	40-2CD	TEN-3
Frequency, MHz	7.0-7.3	28-29.7
No. Elements	2	3
Forward Gain, dBd	5.5	8
Front to Back Ratio, dB	20	25
SWR 1.2:1 Typical		
2:1 Bandwidth, KHz	200	>1500
Power Rating, Watts PEP	2000	2000
3dB Beamwidth, Degrees		
E Plane	70	64
Side Lobe Attenuation	>40	>40
Boom Length, ft (m)	23(6.9)	8 (2.44)
Boom Diameter, in (cm)	2.13-1.88(5.4-4.8)	1.38-1.25(3.5-3.2)
Longest Element, ft (m)	43 (12.9)	18 (5.49)
Element Center Dia., in (cm)	1.25 (3.1)	.75 (1.9)
Turning Radius, ft (m)	23.93 (7.29)	9.8 (3.0)
Mast Size Range, in (cm)	1.5-2(3.8-5.1)	1.5-2(3.8-5.1)
Wind Load, ft ² (m ²)	6.38 (.57)	2.0 (.20)
Weight, lb (kg)	44 (19.8)	9.9 (4.45)

MODEL	20-4CD	20-3CD
Frequency, MHz	14.0-14.35	14.0-14.35
No. Elements	4	3
Forward Gain, dBd	10.0	8.0
Front to Back Ratio, dB	30	30
SWR 1.2:1 Typical		
2:1 Bandwidth, KHz	>400	>300
Power Rating, Watts PEP	2000	2000
3dB Beamwidth, Degrees		
E Plane	56	57
Side Lobe Attenuation, dB	>40	>40
Boom Length, ft (m)	32 (9.75)	20 (6.1)
Boom Diameter, in (cm)	2.13-1.88(5.4-4.8)	2.0 (5.08)
Longest Element, ft (m)	36.08 (11.00)	35.95(10.96)
Element Center Dia., in (cm)	1.25 (3.1)	1.25 (3.1)
Turning Radius, ft (m)	23.75 (7.2)	20 (6.1)
Mast Size Range, in (cm)	1.5-2(3.8-5.1)	1.5-2(3.8-5.1)
Wind Load, ft ² (m ²)	8.1 (.75)	5.5 (.51)
Weight, lb (kg)	55 (24.95)	30 (13.61)



Boomer Sideband/CW Yagis

2 METERS



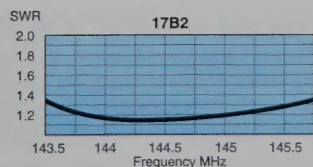
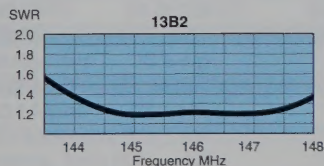
17B2 - 17 Element CW/SSB

The serious two meter operator who is interested in EME, aurora, scatter, SSB, CW, tropo etc, will choose the 17B2. It has 17 elements on a 4.5 wavelength boom. Our computer-aided design supported by precise test range data and the latest manufacturing technology gives you a cleaner pattern and 18 dBd gain in this long boom design. Significant enhancement is provided by the new UltraMatch balanced feed system with N-connector. The improved Boomer brace system is easier to install. 17B2 is a new stronger Boomer with a cleaner profile, less weight and wind load. All these features result in contest winning performance and more day to day operating enjoyment.

13B2 -13 Element Wideband

The new 13B2 is as versatile as the 17B2 is specialized. 13B2 will be your choice for high performance across the entire 2 meter band. New and experienced hams will enjoy 15.8 dBd gain on FM, packet, CW, or sideband across the 4 MHz operating range. The 13B2 is easily mounted vertically or horizontally for maximum performance on your favorite mode. Its optimum boom length makes it a popular antenna that fits just about anywhere. The new UltraMatch balanced feed on the 13B2 provides a 50 Ohm match via a standard SO-239 UHF female connector.

MODEL	124WB	13B2	17B2
Frequency, MHz	144-148	144-148	144-145
No. Elements	4	13	17
Forward Gain, dBd	10.2	15.8	18.0
Front to Back Ratio, dB	24	26	26
SWR 1.2:1 Typical			
2:1 Bandwidth, MHz	>4	>4	>2
Power Rating, Watts PEP	2000	2000	2000
3 dB Beamwidth, Degrees			
E Plane	60	2 x 18	2 x 14.5
H Plane	88	2 x 19	2 x 15
Side Lobe Atten., dB, E Plane	40	>60	>60
Boom Length, ft (m)	4 (1.22)	15 (4.57)	31 (9.45)
Electrical Wavelength	.5	2.2	4.5
Longest Element, in (cm)	40.75 (104)	39.75 (101)	40.75 (103.5)
Turning Radius, ft (m)	4 (1.22)	8.9 (2.7)	17.25 (5.26)
Mast Size Range, in (cm)	1.25-2 (3.2-5.1)	1.5-2 (3.8-5.1)	1.5-2 (3.8-5.1)
Wind Load, ft ² (m ²)	.34 (.034)	1.8 (.17)	3.9 (.36)
Weight, lb (kg)	3 (1.36)	6.7 (.31)	15.75 (7.14)

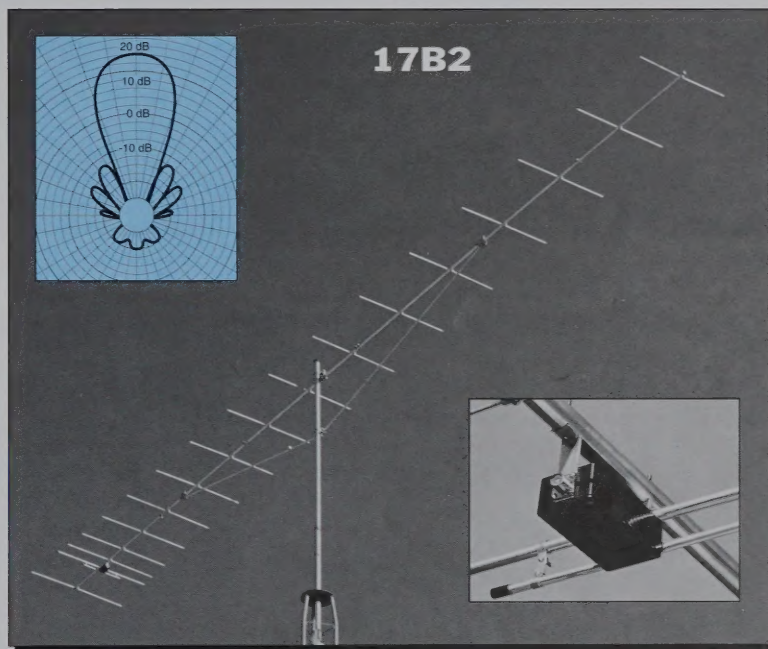


Boomers are easily stacked for more gain. See page 17 for details.

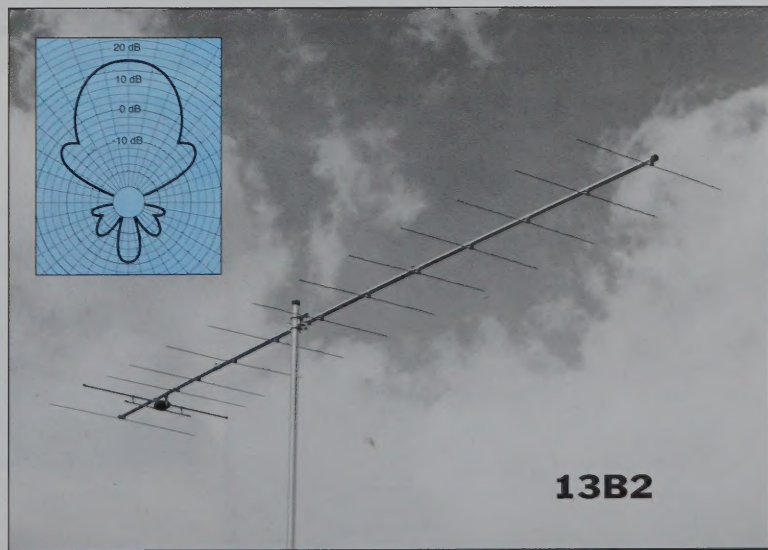
The Boomer tradition continues.

New Boomers offer more gain and cleaner patterns with greater mechanical strength. New element spacings and lengths plus an improved feed system make it happen. Select from the 17B2 for the strongest signal on the low end of the band or the 13B2 for broadband performance across the band.

Cushcraft Boomers all feature solid rod elements, stainless steel hardware and very easy to follow assembly instructions. Simple tools and a little time are all that are needed for assembly. The new Boomer line will make your operating time more rewarding and enjoyable. Move up to the new Boomers today.



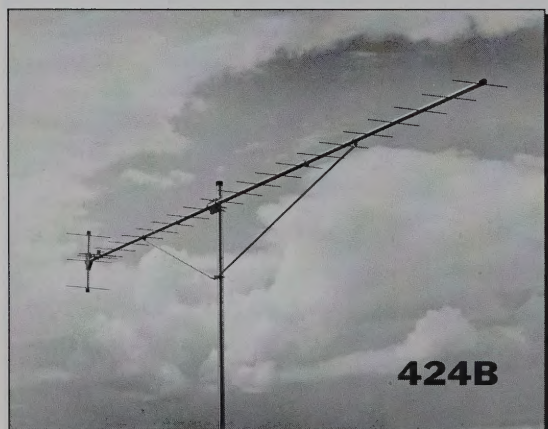
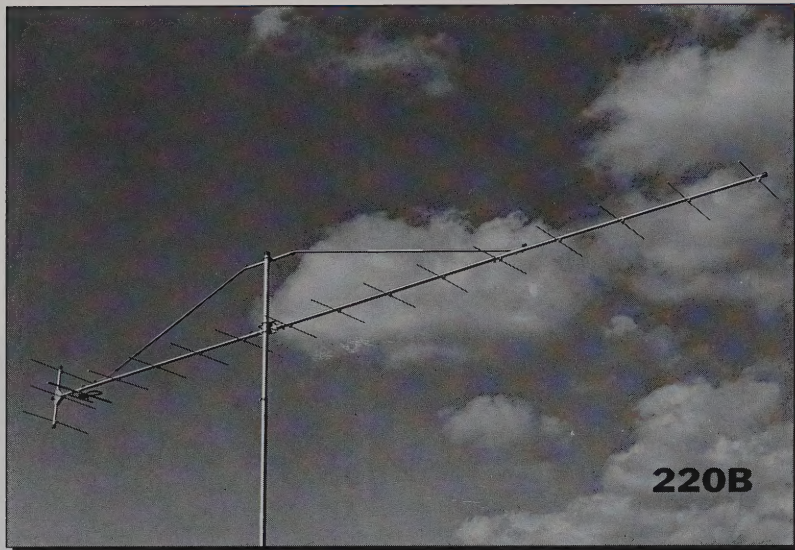
The new Cushcraft UltraMatch is a modified T-match system that provides a balanced current distribution on your Boomer. It uses UltraLink teflon® dielectric cable allowing for low loss high power applications. UltraMatch is completely enclosed for weather proofing. UltraMatch features an N-connector on the 17B2 and UHF SO239 on the 13B2. When all weather performance is important, you will choose the new UltraMatched Boomers everytime.



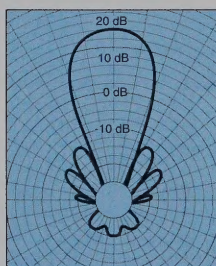
"The 13B2 was very easy to assemble. Very good instructions. High quality parts. A very neat looking antenna." (NM8T)
 "Reliable contacts [on 13B2] to repeaters 100 miles using low power. Horizontally polarized 150 miles plus." (N9MHV)
 "New 17B2 is nice improvement over 4218XL both mechanically and electrically." (VE3ASO)

Boomer Sideband/CW Yagis

70 CM, 1¹/₄, 6 METERS



TYPICAL RADIATION
PATTERN



1¹/₄ Meters

We took the features of our 2 meter antennas and incorporated them into a high-gain 1-1/4 meter antenna that is perfect for this fast growing band. You will have more fun with Cushcraft!

MODEL	220B
Frequency, MHz	222-223
No. Elements	17
Forward Gain, dBd	17.2
Front to Back Ratio, dB	30
SWR 1.2:1 Typical	
2:1 Bandwidth MHz	>2
Power Rating, Watts PEP	2000
3 dB Beamwidth, Degrees	
E Plane	2 x 13
H Plane	2 x 14
Side Lobe Atten., dB, E Plane	60
Boom Length, ft (m)	19 (5.8)
Electrical Wavelength	4.2
Longest Element, in (cm)	26 (66.2)
Turning Radius, ft (m)	9 (2.64)
Mast Size Range, in (cm)	1.5-2 (3.8-5.1)
Wind Load, ft ² (m ²)	2.6 (.24)
Weight, lb (kg)	10.5 (4.77)

6 Meters

Our 617-6B has more gain than any antenna in its class! The serious 6 meter operator will appreciate the features of this great performing Boomer. Find out for yourself.

MODEL	617-6B	424B
Frequency, MHz	50-51	424-435
No. Elements	6	24
Forward Gain, dBd	14.0	18.2
Front to Back Ratio, dB	30	30
SWR 1.2:1 Typical		
2:1 Bandwidth MHz	>1	>12
Power Rating, Watts PEP	2000	2000
3 dB Beamwidth, Degrees		
E Plane	2 x 19	2 x 9.5
H Plane	2 x 20	2 x 11
Side Lobe Atten., dB, E Plane	60	60
Boom Length, ft (m)	34 (10.36)	17.4 (5.3)
Electrical Wavelength	1.7	7.6
Longest Element, in (cm)	117 (297.2)	13 (33.8)
Turning Radius, ft (m)	17.7 (5.39)	10 (3.05)
Mast Size Range, in (cm)	1.5-2 (3.8-5.1)	1.5-2 (3.8-5.1)
Wind Load, ft ² (m ²)	4.8 (.45)	2.3 (.21)
Weight, lb (kg)	26 (11.79)	4.5 (2.05)

70 CM

The contest winner! The 424B will keep you at the top of the charts. Through-the-boom insulated elements, precise spacing, and high efficiency reflector systems are the features that make our 70 cm antennas the right choice for every ham. The 424B has an eye-opening 18.2 dBd forward gain for the ultimate in 70 cm enjoyment.

These boomers are equipped with stainless steel hardware, UV stabilized insulators, teflon® dielectric coaxial balun, seamless heavy-wall booms, and 50 Ohm N connector.

Equip yourself for fun and challenge of 70 cm with a Cushcraft Boomer!

Boomer FM Yagis

1¹/₄, 2 METERS

13B2 - 13 Element Wideband

Boomer evolution continues with the 13B2. This new design is lighter weight, lower profile and has more gain and a cleaner pattern. New technicians and experienced hams will enjoy 15.8 dBd gain on FM, packet, CW, or sideband. 13B2 is easily mounted vertically for greatest FM distance and enjoyment. Its optimum boom length makes it a popular antenna that fits almost anywhere. The new balanced UltraMatch provides a 50 Ohm UHF connector for easy feedline attachment. Stronger performance in the 215WB tradition will be yours with the 13B2.

26B2 - 26 Element Wideband

This antenna offers the highest gain of any 2 meter FM antenna *in the world*. Select the 26B2 when you need to work repeaters or simplex over extreme distances.

124WB - 4 Element Wideband

This is the right choice for packet systems and other applications requiring a dedicated directional antenna.

MODEL	124WB	13B2	26B2
Frequency, MHZ	144-148	144-148	144-148
No. Elements	4	13	26
Forward Gain, dBd	10.2	15.8	18.8
Front to Back Ratio, dB	24	26	26
SWR 1.2:1 Typical			
2:1 Bandwidth, MHz	>4	>4	>4
Power Rating, Watts PEP	2000	2000	2000
3dB Beamwidth, Degrees			
E Plane	60	2x18	2x18
H Plane	88	2x19	2x9.5
Side Lobe Attenuation, dB, E Plane	40	>60	>60
Boom Length, ft (m)	4 (1.22)	15 (4.57)	15 (4.57)
Electrical Wavelength	.5	2.2	2.2
Longest Element, in (cm)	40.75 (104)	39.75 (101)	39.75 (101)
Turning Radius, ft (m)	4 (1.22)	8.9 (2.7)	10.4 (3.18)
Mast Size Range, in (cm)	1.25-2 (3.2-5.1)	1.5-2 (3.8-5.1)	1.5-2 (3.8-5.1)
Wind Load, ft ² (m ²)	.34 (.034)	1.8 (.17)	4.84 (.45)
Weight, lb (kg)	3 (1.36)	6.7 (.31)	21.5 (9.75)

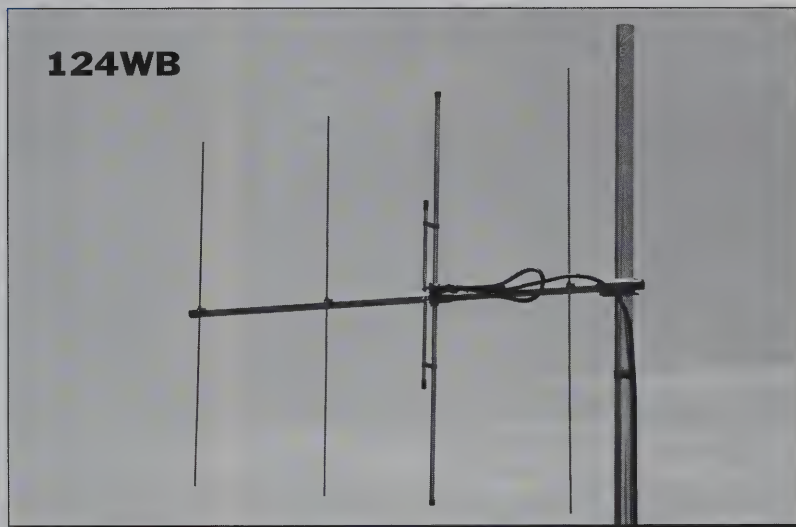
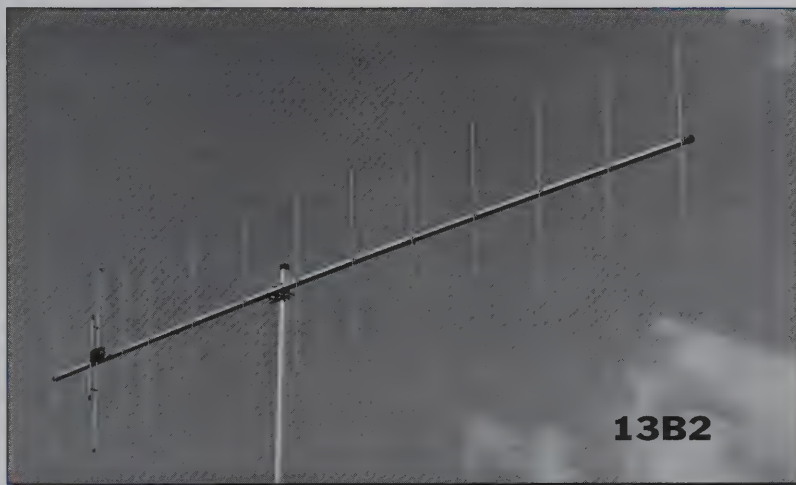
MODEL	224WB	225WB
Frequency, MHZ	222-225	222-225
No. Elements	4	15
Forward Gain, dBd	10.2	15.5
Front to Back Ratio, dB	24	24
SWR 1.2:1 Typical		
2:1 Bandwidth, MHz	>5	>5
Power Rating, Watts PEP	2000	2000
3dB Beamwidth, Degrees		
E Plane	60	2x17
H Plane	88	2x19
Side Lobe Attenuation, dB E Plane	40	60
Boom Length, ft (m)	3 (.91)	10 (3.05)
Electrical Wavelength	0.5	2.2
Longest Element, in (cm)	26.7 (68)	26.3 (67)
Turning Radius, ft (m)	3 (.91)	5.8 (1.78)
Mast Size Range, in (cm)	1.25-2 (3.2-5.1)	1.25-2 (3.2-5.1)
Wind Load, ft ² (m ²)	.23 (.021)	.95 (.09)
Weight, lb (kg)	1.7 (.77)	5.25 (2.4)



All of these antennas give you hot performance with light weight and minimum windload. Stainless steel hardware, solid rod elements and hard drawn aluminum tubing assure you that the antenna will last.

224WB/225WB - 220 MHz Widebands

Perfect for the novice phone band and other 220 MHz operation.



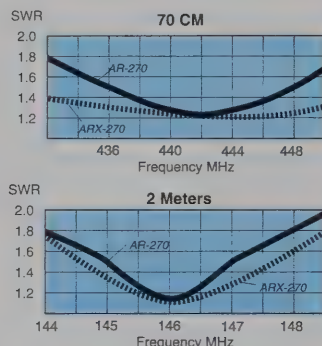
Dual Band Ringos/Mobile

70 CM, 2 METERS

ARX-270 DUAL BAND

NEW

Cushcraft brings you the leading edge of dual band technology with two new 70cm/2m products – The All-American Dual-Bander, a high performance fiberglass base antenna and the CS-270M mobile mag-mount. These great products will complement our already proven AR-270 dual-band compact base antenna.



Made from a very tough copper alloy, the matching networks' coil for both the CS-270M and the ARX-270 are silver plated. The entire matching network is built on a PC board that surrounds the coil. This assures that the antenna will not detune and will operate at peak efficiency for many years.

NEW

AR-270 DUAL BAND

CS-270M DUAL BAND MOBILE



All-American Dual-Band Ringo

Cushcraft's new ARX-270 high performance fiberglass base antenna yields a gain of 9 dB on VHF and 12 dB on UHF. Our exclusive non-metallic U.V. stabilized couplings result in the cleanest pattern of any dual band antenna. The radome is bright white, thick-wall fiberglass that will survive 90 mph winds. The three section design allows easy assembly and is U.P.S. shippable. Our sleek extruded base clamps eliminate vibration and they look great. Professional features like the factory installed pigtail feed and choice of UHF or N connector makes weather-proof connections easy. These technical innovations put the ARX-270 miles ahead.

The All-American Dual-Bander comes factory tuned and does not require any adjustments. The ultimate in dual-band FM enjoyment can be yours with the ARX-270.

- ARX-270U with UHF connector
- ARX-270N with N-connector

MODEL	AR-270		ARX-270U/N	
Frequency, MHz	144-148	435-450	144-148	430-450
SWR 1.2:1 Typical				
2:1 Bandwidth, MHz	>4	>15	>4	>20
Gain, dB	3.7	5.5	9	12
Power Rating, Watts FM	250	250	200	200
Horizontal Radiation				
Pattern, Degrees	360	360	360	360
Height, ft. (m)	3.75 (1.13)		16.5 (5)	
Mast Size Range, in	1.25-2 (3.2-5.1)		1.25-2 (3.2-5.1)	
Radial Length, in (cm)	6.75 (17.1)		20.5 (52.1)	
Wind Load, ft ² (m ²)	0.27 (0.03)		0.95 (0.088)	
Weight, lb (kg)	2 (0.9)		5 (2.3)	

AR-270 Dual-Band Ringo

Experience the performance and appearance advantages of an all-aluminum dual-band antenna. AR-270 incorporates Ringo Ranger technology in a lightweight and durable design with all stainless steel hardware. With its two-section vertical element and three short radials the antenna is very easy to install anywhere. The weather-sealed phasing coil and base matching network eliminate stray RF currents while providing a very low angle of radiation. A simple 50 Ohm cable connection is all you need to experience the full performance of your dual-band 2 meter/70 cm transceiver with the new AR-270.



NEW CS-270M 70 CM/2 Meter Mobile

The CS-270M offers the most gain possible in its compact size. It has 6 dB on 440 and 3.7 dB on 2 meters all in a 36-1/2" tall design. The small coil is insert molded into the center of the radiator. No moisture can penetrate the coil with this technique. The base matching coil is shown above. Note the unique network matching design utilizing the PC board frame.

The magnetic mount features a clinging 90 pound pull and a roof-protecting rubber pad. The feed line is double shielded Teflon® UltraLink Cable.™ Its low-loss, high temperature and designed to last. The CS-270M has all of the features you will need in a dual-band mobile antenna.

Ringo Ranger II

70 CM, 1 $\frac{1}{4}$, 2 METERS



Our Ringos are Number One.

Tough performers at a good price! The Ringo family of dependable, cost-effective antennas has served more hams – from novice to veteran extra – than any other amateur antenna made. Simple, straightforward design, light weight and quick, easy installation make the durable Ringo family right for you.

Ringo's top performance and low cost mean more dB per dollar – an equation anyone can appreciate.

Ringo Ranger II

Our Ringo Ranger II has more gain, less windload, and more mechanical integrity than other two meter antennas. You'll quickly appreciate the benefits of this amazing antenna!

Based on the original W1BX Ringo, the Ringo Ranger II is the latest design featuring three 5/8 wave radiating elements and an adjustable 1/8 wave phasing stub. The result is a very low angle of radiation over your coverage area.

The Ringo Ranger II has built-in lightning protection, UV-stabilized insulators, heavy wall tubing, improved decoupling radials to eliminate feedline radiation, and all-weather performance. The ARX-450BN has all the features of the standard antenna plus N-connector.

Ringo Ranger II. It's the performer. Over 500,000 have been sold!



MODEL	ARX-2B	ARX-220B	ARX-450B
Frequency, MHz	135-160	222-225	435-450
SWR 1.2:1 Typical			
2:1 Bandwidth, MHz	>3	>5	>10
Gain, dB	7.0	7.0	7.0
Power Rating, Watts FM	1000	500	500
Radiation Angle, Deg.	7	7	7
Horizontal Radiation			
Pattern, Degrees	360	360	360
Ring Diameter, in (cm)	5 (12.7)	5 (12.7)	3.5 (8.9)
Radiator Base Dia, in (cm)	.75 (1.9)	.75 (1.9)	.50 (1.2)
Height, ft (m)	14 (4.3)	9.3 (2.8)	4.9 (1.5)
Mast Size Range, in (cm)	1.0-1.25 (2.54-3.1)	1.0-1.25 (2.54-3.1)	.75-.88 (1.9-2.22)
Radial Length, in (cm)	20.5 (52.1)	13.75 (33.7)	6.75 (17.1)
Wind Load, ft ² (m ²)	0.5 (0.05)	0.3 (0.03)	0.2 (0.02)
Weight, lb (kg)	6 (2.7)	5 (2.3)	1 (.45)

Some hams comment on the ARX-2B:

"Since I put this antenna up I have received many compliments on the improvement of my signal." (N3LHP)

"The only antenna I ever installed that worked like it should the first time." (N7PGH)

"ARX-2B is a good antenna for my use on 2 meters FM...Several on the air in my area." (N9OPL)

"ARX-2B...the best antenna." (XE2CLB)

Mobile Antennas

70 CM, 1¹/₄, 2, 6, 10 METERS

CS28M Ten Meter Mag-Mount

Work a new country while you wait for the light to change. Introduced just last year, the CS28M ten meter mag-mount has become a constant companion to today's popular 10 meter multimode mobile rigs. The CS28M comes complete, ready to go with a 49" stainless steel whip and spring and a Euro-Style black poly-coated 90 pound pull magnet. A heavy rubber pad protects your car's finish; twelve feet of Cushcraft's own Ultra-Link™ low-loss cable (specifically designed for commercial mobile applications to 900 MHz) and PL-259 connector are included with the CS-28M.

Gain and Quarterwave Mobile Antennas

Cushcraft's years of commercial and amateur experience apply cutting-edge designs to consistently high quality materials to produce the best mobile antennas you can buy.

All inductors (and even the coil contacts) are silver plated for better RF conductivity, and all Cushcraft mobile hardware is brass to prevent the seizing inherent with inferior, dissimilar-metal joints. All Cushcraft mobile coil housings are ABS, impervious to temperature changes and ultraviolet radiation. Brass base threads, ultrasonically welded into coil housings, eliminate premature failures associated with inferior fastening techniques, and Cushcraft insert-molded 440 MHz phasing coils assure weather-tight integrity. Only Cushcraft mobile antenna mounts are *entirely* 50 Ohms, eliminating lossy "VSWR bumps" common in many well known designs. Cushcraft quarter-wave models (CS1147 and CS1450) are broadband, require no tuning and include UltraLink™ low loss cable.

Magnetic Mounts

Cushcraft mag-mounts *stay where you put them*. Our 90 pound pull magnets are the strongest you'll find. Euro-style black poly finish protects against rust, and a tough rubber pad gives maximum protection to your vehicle's finish. Ultra-Link™ cable on *all* Cushcraft mobile antennas means more of your signal reaches your antenna every time you key the mike.

NEW CS-270M Dual-Band Mobile

See page 10 for a full description of this new 70cm/ 2 meter mag-mount mobile.

Model No.	Frequency MHz	Whip Length in	Whip Length m	Description
CS-270M	144-148 440-450	34	.86	Magnetic
CS-147M	144-174	49	1.25	Magnetic
CS-147T	144-174	49	1.25	Trunk Lip
CS-147	144-174	49	1.25	3/4" Hole
CS-1147M	144-148	20	.5	Magnetic
CS-220M	222-225	33	.84	Magnetic
CS-220T	222-225	33	.84	Trunk Lip
CS-220	222-225	33	.84	3/4" Hole
CS-450M	435-470	29.5	.75	Magnetic
CS-450T	435-470	29.5	.75	Trunk Lip
CS-450	435-470	29.5	.75	3/4" Hole
CS-1450M	430-450	7	.17	Magnetic
CS-50M	46-54	49	1.25	Magnetic
CS-50T	46-54	49	1.25	Trunk Lip
CS-50	46-54	49	1.25	3/4" Hole
CS-28M	28-30	49	1.25	Magnetic

Cushcraft/Signals mobiles offer the high performance that you need for consistent and mobile communications such as commuting and public service activities. These antennas are the choice of hams and communications professionals around the world who demand high-quality, premium products.



**CS-270M
DUAL
BAND**

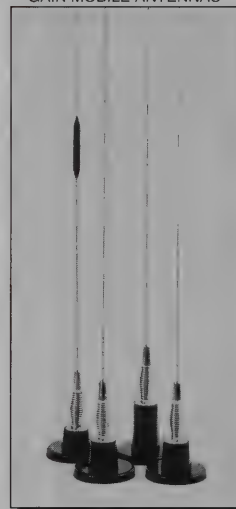


SEE YOUR LOCAL DEALER'S CUSHCRAFT MOBILE DISPLAY.



GAIN MOBILE ANTENNAS

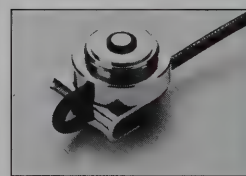
QUARTERWAVE MOBILES



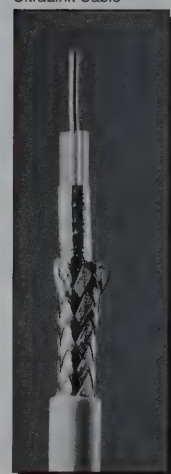
BLACK MAG MOUNT



TRUNK LIP MOUNT



UltraLink Cable™



UltraLink™ Cable

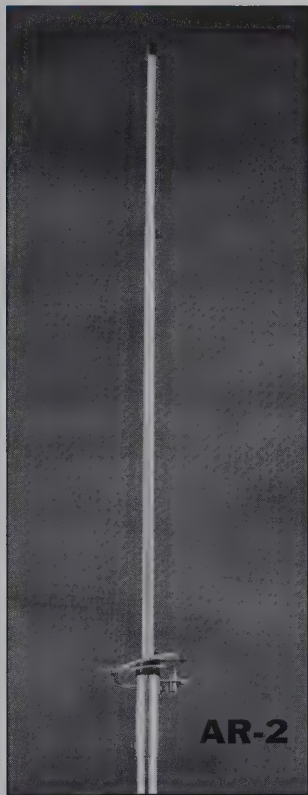
Cushcraft UltraLink cable was designed specifically for high efficiency commercial mobile applications to 900 MHz. UltraLink's RG-58 size allows easy installation through the tightest openings, while its Teflon® dielectric provides the highest temperature tolerance to handle vehicle hot-spots that would melt other dielectric materials. Additional 100% shielding is provided by a jacket of easy-peel foil. All this is covered by 97% braid for easy, secure connector attachment. More of your signal will get through with UltraLink than with any other mobile cable.

Ringo, Ranger and Four Poles

70 CM, 1 $\frac{1}{4}$, 2, 6, 10 METERS



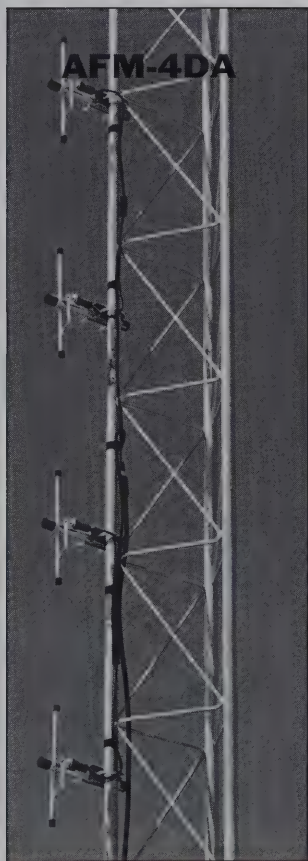
AR-10



AR-2



ARX-2



AFM-4DA

Ringo

These are the original W1BX FM Ringos. If you want a combination of compact size, wide bandwidth, a low radiation angle, these economical antennas are just for you. Since radials are not needed, you can even use our Ringos indoors.

Our Ringos are 1/2 wave and include built-in lightning protection. Put up one of these easily installed antennas and start enjoying FM!

MODEL	AR-2	AR-6	AR-10	AR-220	AR-450
Frequency, MHz	135-160	50-54	28-29.7	222-225	440-460
SWR 1.2:1 Typical					
2:1 Bandwidth, MHz	10	2	>1.5	10	20
Gain, dB	3.75	3.75	3.75	3.75	3.75
Power Rating, Watts FM	1000	1000	1000	500	500
Radiation Angle, Deg.	16	16	16	16	16
Horizontal Radiation					
Pattern, Degrees	360	360	360	360	360
Ring Diameter, in (cm)	5 (12.7)	13 (33)	13 (33)	5 (12.7)	3.5 (8.9)
Radiator Base Dia, in(cm)	.75 (1.9)	1 (2.5)	1 (2.5)	.75 (1.9)	.5 (1.3)
Height, ft, (m)	3.9 (1.2)	10.1 (3.1)	17.6 (5.36)	2.6 (.78)	1.4 (.43)
Mast Size Range, in (cm)	1-1.25 (2.54-3.1)	1-1.25 (2.54-3.1)	1-1.25 (2.54-3.1)	1-1.25 (2.54-3.1)	.75-.88 (1.9-2.22)
Wind Load, ft ² (m ²)	.21 (.02)	.37 (.03)	1.68 (.16)	.21 (.02)	.1 (.01)
Weight, lb (kg)	1.5 (.68)	2.5 (1.1)	4 (1.8)	1.2 (.55)	.3 (.14)

ARX-2 Ringo Ranger

This is the antenna that combines good gain with compact size. If space does not allow extra height or decoupling radials, then the ARX-2 is for you.

Gain 5.5 dB, frequency range 135-160 MHz, SWR 2:1 bandwidth greater than 6 MHz, length 112" (2.8 m), wind area .33 ft² (.03m²), mast size range 1"-1.25" (2.54-3.1 cm), weight 4 lbs (1.8 kg), power handling 1000 Watts.

Four Pole Arrays

Cushcraft's four 1/2 wave dipole array is perfect for your repeater or as a powerful base antenna.

Strong through-the-boom dipole mounting ensures long life and superior electrical characteristics.

The dipoles mount to your tower's legs or on a separate support mast (not included). They can be arranged for omni or elliptical patterns.

MODEL	AFM-4DA	AFM-24DA	AFM-44DA
Frequency, MHz	144-148	222-225	435-450
Gain, dBd	9 Offset 6 Omni	9 Offset 6 Omni	9 Offset 6 Omni
SWR 1.2:1 Typical			
2:1 Bandwidth, MHz	>4	>5	>15
Power Rating, Watts FM	500	500	250
Radiation Angle Degrees	6	6	6
Horizontal Radiation			
Pattern, Degrees	360-Variable	360-Variable	360-Variable
Height, ft (m)	23 (7.0)	15 (4.5)	8 (2.4)
Mast Size Range, in (cm)	1.5-2.0 (3.8-5.1)	1.5-2.0 (3.8-5.1)	1.25-2.0 (3.2-5.1)
Wind Load, ft ² (m ²)	2.54 (.24)	1.85 (.17)	1.13 (.11)
Weight, lb (kg)	7 (3.2)	6 (2.7)	5 (2.3)

70 CM, 2 METERS

Try These Popular Antennas

Two antennas have been keys to the growth of FM communication: our 11 element A147-11 and our 22 element A147-22 array. These are favorites because of their reasonable size and high value. Assembly is a snap, too!

These lightweight and durable antennas feature evenly spaced, tapered length solid aluminum rod elements for good bandwidth and include Reddi Match for direct 50 Ohm feed. You will be on the air fast and strong with these antennas!

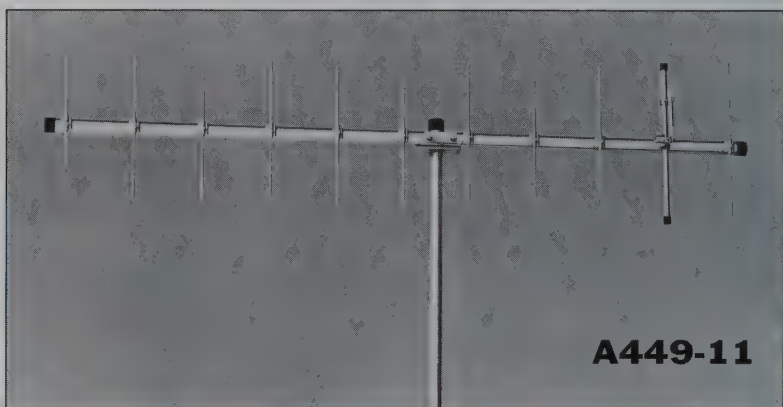
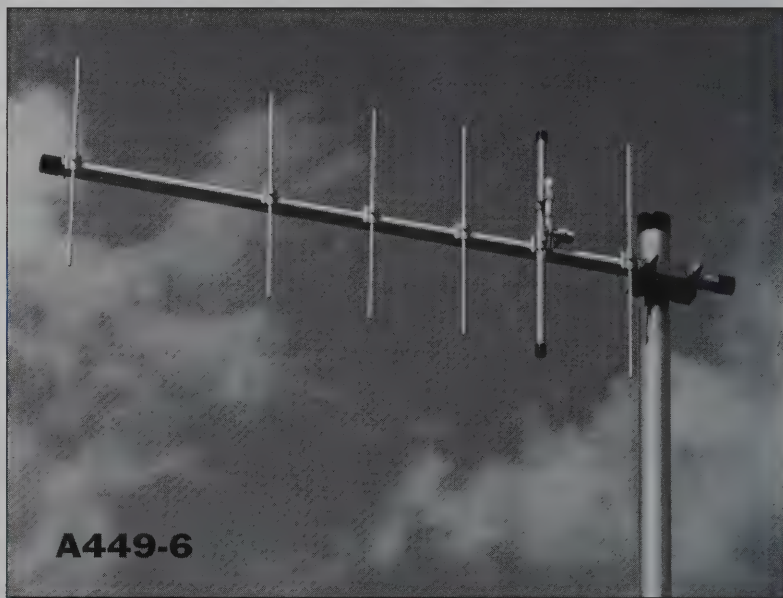
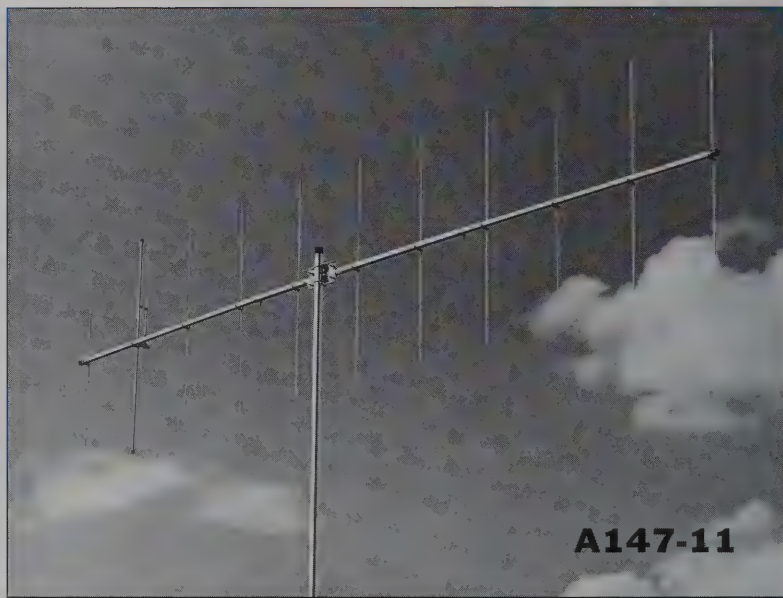
MODEL	A147-11	A147-22
Frequency, MHz	145.5-148	145.5-148
No. Elements	11	22
Forward Gain, dBd	13.2	16.2
Front to Back Ratio, dB	20	20
SWR 1.2:1 Typical		
2:1 Bandwidth, MHz	3	3
Power Rating, Watts PEP	800	800
3dB Beamwidth, Degrees		
E Plane	48	24
Boom Length, ft (m)	12 (3.6)	6.6 x 12 (2.1 x 3.6)
Longest Element, in (cm)	40 (101.6)	40 (101.6)
Turning Radius, ft (m)	6 (1.8)	6.6 (2.0)
Mast Size Range, in (cm)	1.25-1.5	1.25-2.0
	(3.2-3.8)	(3.2-5.1)
Wind Load, ft ² (m ²)	1.21 (0.11)	2.82 (.26)
Weight, lb (kg)	6 (2.7)	15 (6.8)

MODEL	A449-6	A449-11
Frequency, MHz	440-450	440-450
No. Elements	6	11
Forward Gain, dBd	10.5	13.2
Front to Back Ratio, dB	18	20
SWR 1.2:1 Typical		
2:1 Bandwidth, MHz	>10	>10
Power Rating, Watts PEP	350	350
3dB Beamwidth, Degrees		
E Plane	60	48
Boom Length, ft (m)	2.9 (0.89)	4.2 (1.35)
Longest Element, in (cm)	13 (33)	13 (33)
Turning Radius, ft (m)	2.9 (.89)	2.8 (.85)
Mast Size Range, in (cm)	1.25-2.0	1.25-1.5
	(3.2-5.1)	(3.2-3.8)
Wind Load, ft ² (m ²)	0.30 (0.03)	0.39 (0.04)
Weight, lb (kg)	3 (1.4)	4 (1.8)

Stacking Kits

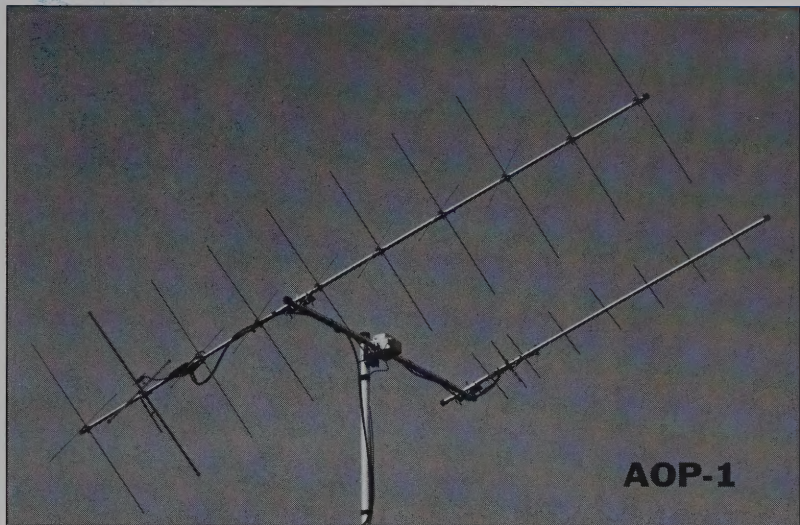
Our VPK stacking kits for the antennas above are supplied complete with mounting boom, harness, and hardware.

Antenna	Frequency MHz	Complete Kit	Harness Only
A147-4	144.5-148	A14-VPK	A14-SK
A147-11	144.5-148	A147-VPK	A147-SK
A449-6	440-450		A449-SK
A449-11	440-450	A449-VPK	A449-SK

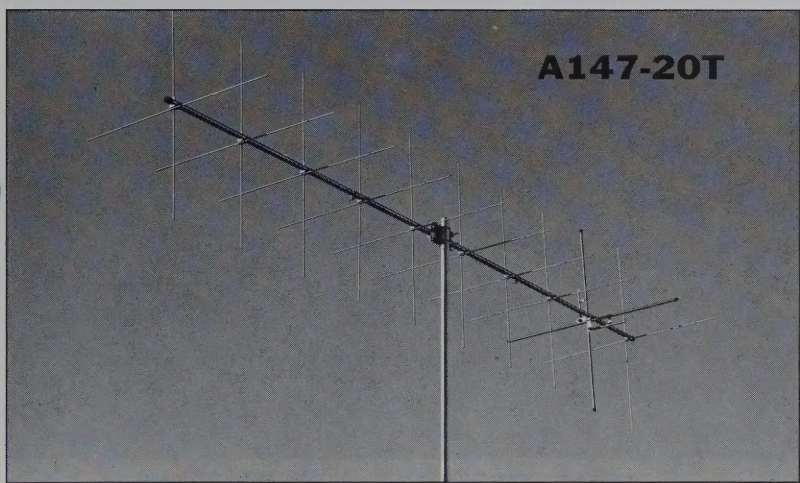


Specialized Antennas

70 CM, 2 METERS



AOP-1



A147-20T

COMMITTED TO INNOVATION

Innovation is the Cushcraft goal established by our founder, Les Cushman, W1BX. It is in this spirit that we have created many new and exciting products for amateur radio.

Our innovative designs include the first coaxial lightning arrester, Ringo Rangers, Squalo HF and VHF omni antennas plus the pioneering A147-11 and A147-22 VHF FM antennas. Using the newest technology we have produced Boomer and Skywalker computer design Yagis, the R3, R4, R5 and R7 vertical antennas, the all new ARX-270, CS-270M and the AP8A antennas.

The engineering hams and manufacturing staff at Cushcraft are committed to continual upgrading of existing designs. While many improvements do not qualify for new product status, they do enhance the value of products which we offer to you.



OSCAR

The Complete Antenna System

Here's the system that will get you up and running in a hurry. Cushcraft's AOP-1 includes our 416TB uplink, A144-20T downlink, A14-TMB mounting boom, and all of the hardware for quick assembly and installation.

True selectable left or right circular polarization (see our optional PS4 switcher below), and fine performance make the AOP-1 the right choice for your OSCAR contacts.

You can use our A14T-MB mounting kit for easy installation and compatibility with the U110 elevation rotor. Order as a complete system or buy individual components.

OSCAR operation will be more fun with the remote polarity switch mounted right on the 416TB. You will access satellites having either left or right hand circular polarization.

MODEL	A144-10T	A144-20T	416TB
Frequency, MHz	145.9	145.9	435
No. Elements	2 x 5	2 x 10	2 x 8
Forward Gain, dBd	10.5	12.2	12.5
Front to Back Ratio, dB	20	20	20
SWR 1.2:1 Typical			
2:1 Bandwidth, MHz	>2	>2	20
Power Rating, Watts PEP	800	800	500
3dB Beamwidth, Degrees			
E Plane	52	38	34
Boom Length, ft (m)	5.83 (1.8)	10.83 (3.3)	6.7 (2.03)
Longest Element, in (cm)	40 (101.6)	40 (101.6)	13.3 (33.8)
Turning Radius, ft (m)	3.4 (1.04)	5.8 (1.78)	6.7 (2.04)
Mast Size Range, in (cm)	1.25-1.5 (3.2-3.8)	1.25-1.5 (3.2-3.8)	1.5-2.0 (3.8-5.1)
Wind Load, ft ² (m ²)	.74 (.07)	1.42 (.13)	.5 (.05)
Weight, lb (kg)	3.5 (1.6)	6.6 (3.0)	4.9 (2.2)

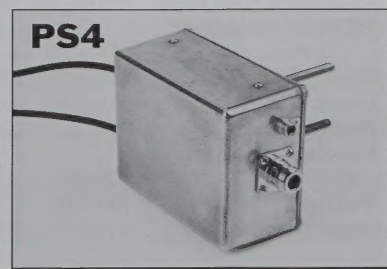
2 Meter Hi-Lo Cross Yagi

Here's the antenna that solves multi-mode problems! Ten vertically polarized and ten horizontally polarized elements provide 11.1 dBd gain in the 144-148 segment of the two meter band. The horizontal elements handle your CW and SSB needs, while the vertical elements cover FM.

The A147-20T has a boom length of 130 in. (3.3m), longest element length of 40 in. (1.0 m), wind area of 1.42 ft² (.13m²), and a mast size of 1.25-1.5 in. (3.2-3.8 cm)

PS4 Polarity Switcher

OSCAR uplink signals can be improved by matching the transmitted polarity of the satellite receiving polarity. Many hams like the option of remote switching 435 MHz polarity with the PS4. It mounts conveniently on the 416TB antenna, is weatherproof and requires 12 Volts DC for switching.



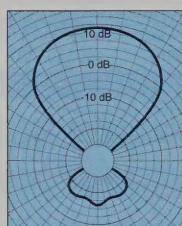
Sideband Yagis

70 CM, 2, 6 METERS

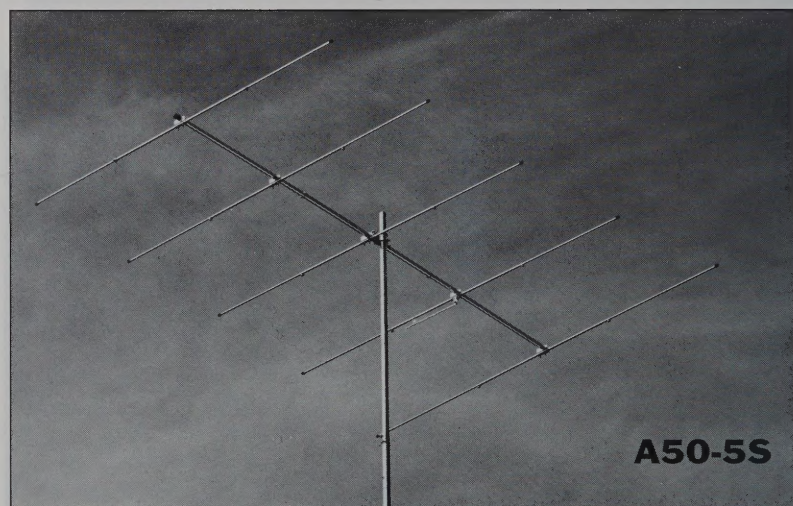
Computer-aided modeling and test range techniques were used by Cushcraft engineers to further optimize the performance of our popular 6 meter Yagis. This process means more gain and cleaner patterns with excellent front-to-back ratios. S-models have very broad bandwidth so they will not detune in bad weather. They feature stainless steel hardware for long trouble-free life.

Enjoy the new popularity and exciting contacts on the 6 meter band with one of the S-series Cushcraft Yagis.

MODEL	A50-3S	A50-5S	A50-6S
Frequency, MHz	50-54	50-54	50-54
No. Elements	3	5	6
Forward Gain, dBd	8	10.5	11.6
Front to Back Ratio, dB	20	24	26
SWR 1.2:1 Typical			
2:1 Bandwidth, MHz	>1	>1	>1
Power Rating, Watts PEP	1000	1000	1000
3dB Beamwidth, Degrees			
E Plane	76	56	48
Boom Length, ft (m)	6 (1.8)	12 (3.7)	20 (6.1)
Longest Element, in (cm)	117 (300)	123 (312)	119 (302)
Turning Radius, ft (m)	6 (1.8)	7.8 (2.37)	11.5 (3.5)
Mast Size Range, in (cm)	1.5-2 (3.8-5.1)	1.5-2 (3.8-5.1)	1.5-2 (3.8-5.1)
Wind Load, ft ² (m ²)	1.80 (0.17)	2.9 (0.273)	4.46 (.41)
Weight, lb (kg)	7 (3.2)	11 (5.0)	18 (8.2)



A50-6S
RADIATION
PATTERN



70 CM / 2 Meters

The time proven designs of our VHF and UHF antennas give excellent performance from small size. The element lengths are tapered for good bandwidth. They feature our Reddi Match 50 Ohm feed system with UHF type connector and vinyl protective boot. Assembly of these lightweight, durable Yagis is quick and easy.

MODEL	A144-7	A144-11	A430-11
Frequency	144-146	144-146	430-435
No. Elements	7	11	11
Forward Gain, dBd	11.1	13.2	13.2
Front to Back Ratio, dB	20	20	20
SWR 1.2:1 Typical			
2:1 Bandwidth, MHz	>3	>3	>10
Power Rating, Watts PEP	1000	1000	350
3dB Beamwidth, Degrees			
E Plane	46	38	38
Boom Length, ft (m)	8.2 (2.5)	12 (3.7)	4.7 (1.4)
Longest Element, in (cm)	40 (101.6)	40 (101.6)	14 (35.5)
Turning Radius, ft (m)	4.9 (1.5)	6.75 (2.0)	2.6 (.81)
Mast Size Range, in (cm)	1.5-2 (3.8-5.1)	1.25-1.5 (3.1-3.8)	1.25-1.5 (3.1-3.8)
Wind Load, ft ² (m ²)	0.81 (0.08)	1.21 (.11)	0.42 (0.04)
Weight, lb (kg)	4 (1.8)	6 (2.7)	3 (1.4)



Antenna Accessories



LAC4H



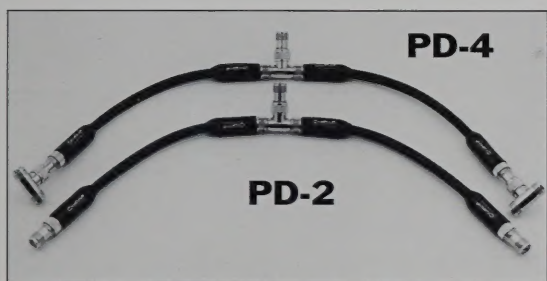
LAC4N



LAC-1



LAC-2



PD-4

PD-2

One year warranty backed by our 40 years of antenna experience.

Cushcraft antennas are designed to survive 80 mph (129 kph) winds.

For safe antenna installations, avoid contact with powerlines.

The use of lightning arresters is highly recommended.

Stainless steel hardware and high grade seamless 6063-T832 tubing used in all antennas.

Support mast, feedline and RF chokes are not included with antennas.

Specifications are subject to change without notice.

All Cushcraft antennas are available through dealers worldwide.

Fast Acting Gas Discharge Lightning Arresters

Protect your valuable equipment from surges of up to 5,000 amperes with a Cushcraft constant impedance LAC4 arrester! The LAC4 has a replaceable gas discharge tube which clamps voltage surges to less than 50 volts in about 100 nanoseconds—much quicker than the voltage rise time of lightning.

You cannot afford to be without lightning protection. One of the models below is right for your shack.

LAC4	200 Watt with UHF SO-239 connectors
LAC4H	2 kW with UHF SO-239 connectors
LAC4N	200 Watt with N connectors
LAC4NH	2 kW with N connectors
LC2	200 Watt replacement cartridge
LC2KW	2 kW replacement cartridge

Blitz Bug Lightning Arresters

Cushcraft also recommends this well-known series of arresters which are based on a patented three point static discharge design. The Blitz Bug has a sealed air chamber, constant static drain, and controlled voltage discharge.

The Blitz Bug is rated at 2 kw PEP to 500 MHz with negligible insertion loss.

LAC-1	with UHF PL-259 and SO-239 connectors
LAC-2	with UHF SO-239 connectors

Power Dividers For Boomers

Our power dividers make it a snap to stack Cushcraft Boomers. Models for 17B2 have N-connectors. They are available for these antennas:

PD-2	for two 13B2, 124WB
PD-2N	for two 17B2
PD-4	for four 13B2
PD-4N	for four 17B2
PD-222	for two 220B, 224WB or 225WB
PD-224	for four 220B, 224WB or 225WB

Stacking Harnesses For Boomers

For even easier installation of our Boomers, use our installation kits that are complete with harness and power divider. Models for 17B2 have N-connectors.

617-SK	for two 617-6B's
22-SK	for two 13B2's
22N-SK	for two 17B2's

BOOMER STACKING INFORMATION

Antenna	2x617-6B	2x13B2	4x13B2	2x220B	4x220B	2x424B	4x424B	2x17B2	4x17B2
Forward Gain, dBd	17.0	18.8	21.8	19.8	22.4	20.8	23.4	21.0	24.0
Front/Back Ratio	30	24	24	30	30	30	30	24	24
E-Plane Beamwidth, deg	2x17.5	2x18	2x9	2x13	2x6.5	2x9.5	2x4.8	2x14.5	2x7.3
H-Plane Beamwidth, deg	2x10	2x9.5	2x9.5	2x7	2x5.5	2x5.5	-	2x7.5	2x7.5
Vert, ft	26	9.2	9.2	8	8	5	5	11.5	11.5
(m)	7.92	2.8	2.8	2.44	2.44	1.97	1.97	3.5	3.5
Horiz, ft	-	-	9.6	-	8.5	-	5.5	-	12
(m)	-	-	3.0	-	2.59	-	2.16	-	3.7
Approximate Wt, lb	62	22	44	23	76	15	55	32.5	115
(kg)	28.12	10.00	20.00	10.40	34.40	7.62	24.95	14.8	52.3

ANTENNA LOCATOR CHART

DESCRIPTION	POPULAR MODES				BANDS OF OPERATION													PAGE
	SSB	CW	FM	PACKET	80	40	30	20	17	15	12	10	6	2	1.25	0.7		
HF half-wave R5 / R7 verticals	●	●				●	●	●	●	●	●	●					1	
HF tri-band Yagis	●	●						●	●	●	●	●					2,3	
HF add-on kits	●	●				●	●										3	
HF rotatable dipoles	●	●				●	●	●	●	●	●	●					3	
HF quarter-wave verticals	●	●			●	●	●	●	●	●	●	●					4	
HF monoband Yagis	●	●				●		●		●		●					5, 6	
VHF Boomer Yagis	●	●												●			7	
VHF-UHF Boomer Yagis	●	●											●		●	●	8	
VHF-UHF FM Boomer Yagis			●	●										●	●		9	
VHF-UHF dual band vertical			●	●										●		●	10	
HF-VHF-UHF verticals			●	●								●	●	●	●	●	10,11,13	
HF-VHF-UHF mobiles	●		●	●								●	●	●	●	●	10,12	
VHF-UHF FM Yagis			●	●										●		●	14	
VHF-UHF OSCAR circular Yagis	●	●												●		●	15	
VHF-UHF sideband Yagis	●	●											●	●		●	16	
HF-VHF-UHF lightning arresters	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	17	
VHF-UHF Boomer stacking kits	●	●	●	●									●	●	●	●	17	
HF-VHF-UHF mobile mounts													●	●	●	●	12	
Boomer stacking information																	17	



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Cushcraft
mobile, base
and accessory
display at your
local dealer.*

AVAILABLE THROUGH DEALERS WORLDWIDE



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